

POLISHING PADS AND PLANARIZING MACHINES  
FOR MECHANICAL OR CHEMICAL-MECHANICAL PLANARIZATION  
OF MICROELECTRONIC-DEVICE SUBSTRATE ASSEMBLIES,  
AND METHODS FOR MAKING AND USING SUCH PADS  
AND MACHINES

ABSTRACT OF THE DISCLOSURE

Polishing pads used in the manufacturing of microelectronic devices, and apparatuses and methods for making and using such polishing pads. In one aspect of the invention, a polishing pad for planarizing microelectronic-device substrate assemblies has a backing member including a first surface and a second surface, a plurality of pattern elements distributed over the first surface of the backing member, and a hard cover layer over the pattern elements. The pattern elements define a plurality of contour surfaces projecting away from the first surface of the backing member. The cover layer at least substantially conforms to the contour surfaces of the pattern elements to form a plurality of hard nodules projecting away from the first surface of the backing member. The hard nodules define abrasive elements to contact and abrade material from a microelectronic-device substrate assembly. As such, the cover layer defines at least a portion of a planarizing surface of the polishing pad.